

Work Order ID 62841



Page 1

October 12, 2010 7:22:17 AM

Item ID: D212-664-207

Accept



Setup Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

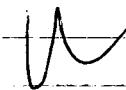
Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:



Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D212-664-247	Rev B

100 0.00



DOCUMENT CONTROL

DC

Document Control

Memo

0.00

Photocopy bluefile and create labels as per PPP D212-664-207 CHG001

ar for BG 10/11/08

Sialulog

110 0.00



Packaging

Packaging

Pick Kit

Packaging

0.00

Memo

0.00

ar 10-10-12 (P)

120 0.00



CNC Bend 2

CNC Alpha 160 Bender

BENDING MACHINE - CROSSTUBES

Memo

0.00

Bend tube as per Dwg D212-664-247 using CNC bender program
FT and Folio

ar 10-10-12 (P)

Pb?

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D912-Wdt-20X PAR #: _____ Fault Category: x-tubes NCR: Yes No DQA: Date: 10/16/09
 Resolution: re-work Disposition: rework QA: N/C Closed: Date: 10/11/10

NCR: 62841		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10.10.12	140	One hole in cuff oxidized during drilling Process	GP 10.10.12 08042	SCRAP & REPLACE D3662-1 CUFF.	10/10/12 10/10/13	S 10/10/13	GP 10.10.12 081042	S 10/10/13

NOTE: Date & initial all entries

Work Order ID 62841

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Item ID: D212-664-207

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Item Name: Crosstube Low Standard Aft

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Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInspec.
Stamp

130



QC

Quality Control

QC15- Crosstube Dimensional Check

0.00

S 10/10/12

140



Crosstubes

0.00

Crosstubes

Memo

0.00

①

1-Drill Rivet holes as per Dwg D212-664-247 using DT8972.***Use T-Pin***

2-Drill pilot holes in tube as per Dwg D212-664-247 using DT8550 and DT8551

3-Ream hole to finish size in tube as per Dwg D212-664-247

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-247

5-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-247

SAD/BL
10-10-13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62841

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October 12, 2010 7:22:17 AM

Item ID: D212-664-207

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Setup Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150



Crosstubes Chemical Conversion

0.00

SAD
10-10-13

(1)

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

160



QC3- Inspect Part Finish

0.00

8/10/10/13

0.00

QC

Quality Control

170



QC5- Inspect part completeness to step on W/O

0.00

8/10/10/13

0.00

QC

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62841

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Item ID: D212-664-207

Accept



Setup Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____ Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180



Outsource process - NDT per QSI038 4.1

0.00

CL 10/10/11 D

Outsource2

Memo

0.00

Outsource process - NDT

Liquid Penetrant Inspection as per QSI 038
Issue P/O: 12740 LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

190



Receive & Inspect for Damage & Mat'l Certs

0.00

Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

Project 6

200



QC5- Inspect part completeness to step on W/O

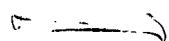
0.00

Memo

0.00

Quality Control

Inspect for damage & ensure results are as per Dwg D212-664-207



E 10-70=70

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62841

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October 12, 2010 7:22:25 AM

Item ID: D212-664-207

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Setup Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Required Date: 10/22/10 Req'd Qty: 1.00



Reference:

Approvals:	Process Plan:	Date:	Tooling:
	QC:	Date:	SPC (Y/N):

Cust Item ID:

Customer:

Date:	Run	Start
Date:	Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours
210 	Crosstubes	0.00
Crosstubes	Memo	0.00
Crosstubes	1-Rivet and assemble Cuffs with T-Pin in the through bolt holes as per Dwg D212-664-247. with Sika flex in Between tube & Cuff	
	A/R SIKAFLEX -241/-291 BATCH: 115114	

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

215 	QC5- Inspect part completeness to step on W/O	0.00
QC 	Memo	0.00
Quality Control	***Inspect cuff with T-Pin***	



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62841

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October 12, 2010 7:22:31 AM

Item ID: D212-664-207

Accept



Setup Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:
	QC:	Date:	SPC (Y/N):	Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours
--------------------------------	--------------------------	----------------------

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------	--------	--------------	---------------	---------------	------------------	----------------

220 SprayPaint

0.00

m 10 11 04 ①



SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 10:00Finish Time: 10:30

PAINT:

Start Time: 2:30Finish Time: 3:00

230



QC14- Inspect Spray Paint

0.00

4T 10-11-05

QC

Quality Control

Memo

Wrap in plastic bag to protect from scratches



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62841

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Item ID: D212-664-207

Accept



Setup

Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

240



Crosstubes

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

0.00

Crosstubes

Memo

0.00

Crosstubes

1- Assemble as per Dwg D212-664-247

2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area
with 41058 wash 'n' wipe

3- Instal support with magnobond 6398 per dwg D212-664-247,
cure for 12hrs before packaging.

Time & date of application: 10/13/10

Batch: 115580

EXP. DATE 07/2011

Torqued, ml 10/11/08 ①

250



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

S. Solis

m 10 11 05 ①

Work Order ID 62841

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Item ID: D212-664-207

Accept



Setup

Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

255



Packaging

Packaging

Pick Kit

0.00

10/11/10

260



QC

Quality Control

QC4- 100% Inspect kits for completeness

0.00

S volulos

TH

270



Packaging

Packaging

Packaging

Memo

0.00

Recut

0.00

Recut

Identify and pack for shipping as per PPP D212-664-207

10/14/10

Work Order ID 62841

October 12, 2010 7:22:36 AM



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Item ID: D212-664-207

Accept



Setup Start



Revision ID:

Item Name: Crosstube Low Standard Aft

Stop



Start Date: 10/13/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/22/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

280



QC

Quality Control

Operation
Description

QC21- Final Inspection - Work Order Release

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Memo

0.00

CK 10/11/09 JF
 MF
 10-11-9

Picklist Print

October 12, 2010 7:22:14 AM

Page 1

Work Order ID: 62841



Parent Item: D212-664-207



Parent Item Name: Crosstube Low Standard Aft

Start Date: 10/13/10

Required Date: 10/22/10

Comments:

IPP Rev:A New Issue 07.09.12 EC verified by: JLM
 IPP Rev:B ECN 1100p 08-01-11 DD verified by: EC
 IPP Rev:C ECN 1121 08-02-25 DD verified by: eC
 IPP Rev: D QC5 replaced by QC15 at step 5 KJ Verified by: ec

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D212-664-
207TRNRevA



Manufactured

No

B 60463

110

Each

0.0000

1

1

10-10-12
R

Crosstube Turning Detail

D3660-1



Manufactured

No

140

Each

6.0000

2

2

SAP 10-10-10

CUFF

Location	Loc Qty	Loc Code
----------	---------	----------

ST477

6

53501

6

CR3212-4-06



Purchased

No

220

Each

1,177.000

44

44

3 EL 10-10-10

CHERRY RIVET

Location	Loc Qty	Loc Code
----------	---------	----------

ST311

1177

112492
112612
112724
112794

156

21

200

800

10-10-03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October 12, 2010 7:22:15 AM

Page 2

Work Order ID: 62841



Parent Item: D212-664-207



Parent Item Name: Crosstube Low Standard Aft

Start Date: 10/13/10

Required Date: 10/22/10

Start Qty: 1.00

Required Qty: 1.00

D3595-063-530



Manufactured

No

240

Each

73.0000

4

4



RUBBER CUSHION

10. 11. 05

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP	36	
50030	12	
51776	24	
LG	37	
<u>59581</u>	37	

D2940-1



Manufactured

No

240

Each

37.0000



2

10. 11. 05

Support

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	37	
45203	1	
<u>57338</u>	16	
60271	20	

MS21920-28



Purchased

No

240

Each

65.0000



4

10. 11. 05

Clamp(per MIL-DTL-8783C)

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	5	
105884	5	
LG	50	
112863	12	
<u>114749</u>	48	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

Picklist Print

October 12, 2010 7:22:15 AM

Page 3

Work Order ID: 62841



Parent Item: D212-664-207



Parent Item Name: Crosstube Low Standard Aft

Start Date: 10/13/10

Required Date: 10/22/10

Start Qty: 1.00

Required Qty: 1.00

D3428-1

Manufactured

No

255

Each

8.0000

1

1



10/11/08D



Placard

Location	Loc Qty	Loc Code
----------	---------	----------

ST096	8	
-------	---	--

62096	8	
-------	---	--

MS21042L6

Purchased

No

255

Each

240.0000

6



10/11/08P

Nut

Location	Loc Qty	Loc Code
----------	---------	----------

ST300	240	
-------	-----	--

111578	4	
--------	---	--

114495	36	
--------	----	--

115300	200	
--------	-----	--

AN960JD616

NAS1149D0663J

Purchased

No

255

Each

0.0000

18



1115698 10/11/08P

Washer

AN6-40A

Purchased

No

255

Each

87.0000

4



10/11/08L

Bolt

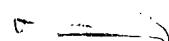
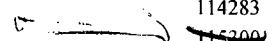
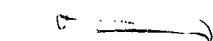
Location	Loc Qty	Loc Code
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ST343	87	
-------	----	--

112828	1	
--------	---	--

114283	26	
--------	----	--

115300	60	
--------	----	--



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 62841



Parent Item: D212-664-207

Parent Item Name: Crosstube Low Standard Aft

Start Date: 10/13/10

Required Date: 10/22/10

Start Qty: 1.00

Required Qty: 1.00

AN6-41A



Bolt

Purchased No

255

Each

62.0000

2

2



10/11/10

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST344	62	
113288	32	
115316	30	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval. QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD

Work Order: 62841

Description: Crosstube Low Aft (205/212)

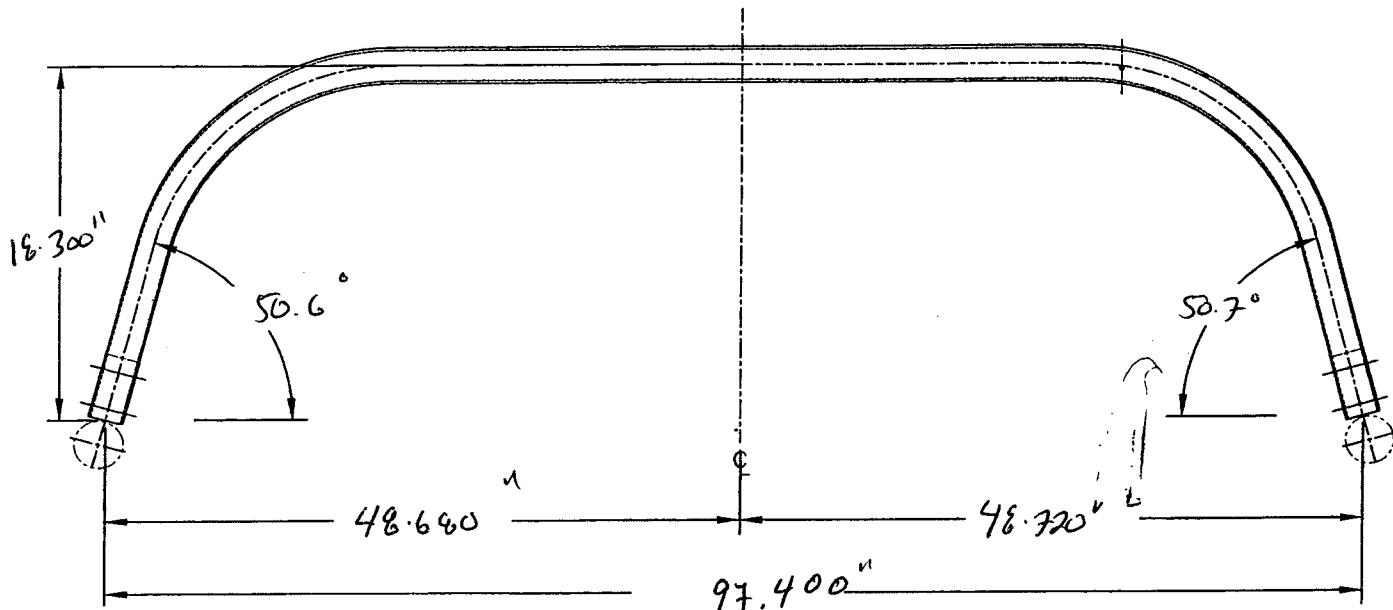
Part Number: D212-664-207

Inspection Dwg: D212-664-247

Rev: B

Page 1 of 1

Required Dimension	Min	Max
Height	18.16	18.42
1/2 Span	48.55	48.81
Angle	49	52
Total Span	97.1	97.62



Comments

QC15 Inspection

Date

S

10/10/12

Rev	Date	Change	Revised by	Approved
A	08.02.29	New Issue	KJ/JM	
B	10.04.01	Dwg Rev updated	KJ	

B

Item	Qty	Qty	Part Number	Description
	-247	-247B		
1	X		D212-664-247	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
2		X	D212-664-247B	CROSSTUBE ASSEMBLY (214 LOW AFT)
3	1	1	D6008-132	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	2	2	D3660-1	CUFF
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION R80-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

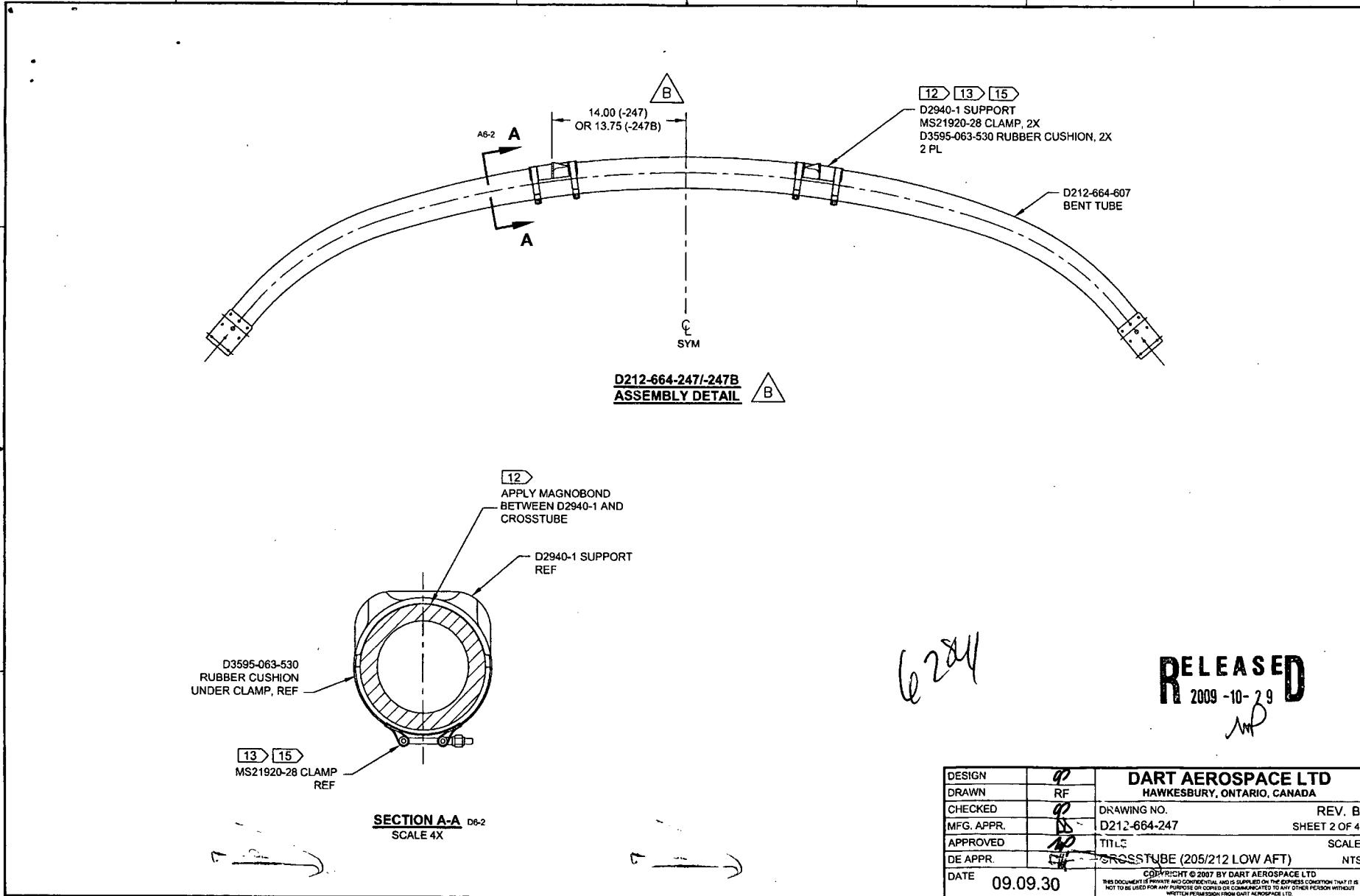
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6008-132
FINISHED LENGTH = 128.268±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-247 = 36.6 lbs (PER IIN-D212-664)
D212-664-247B = 36.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 16) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

MU 62841

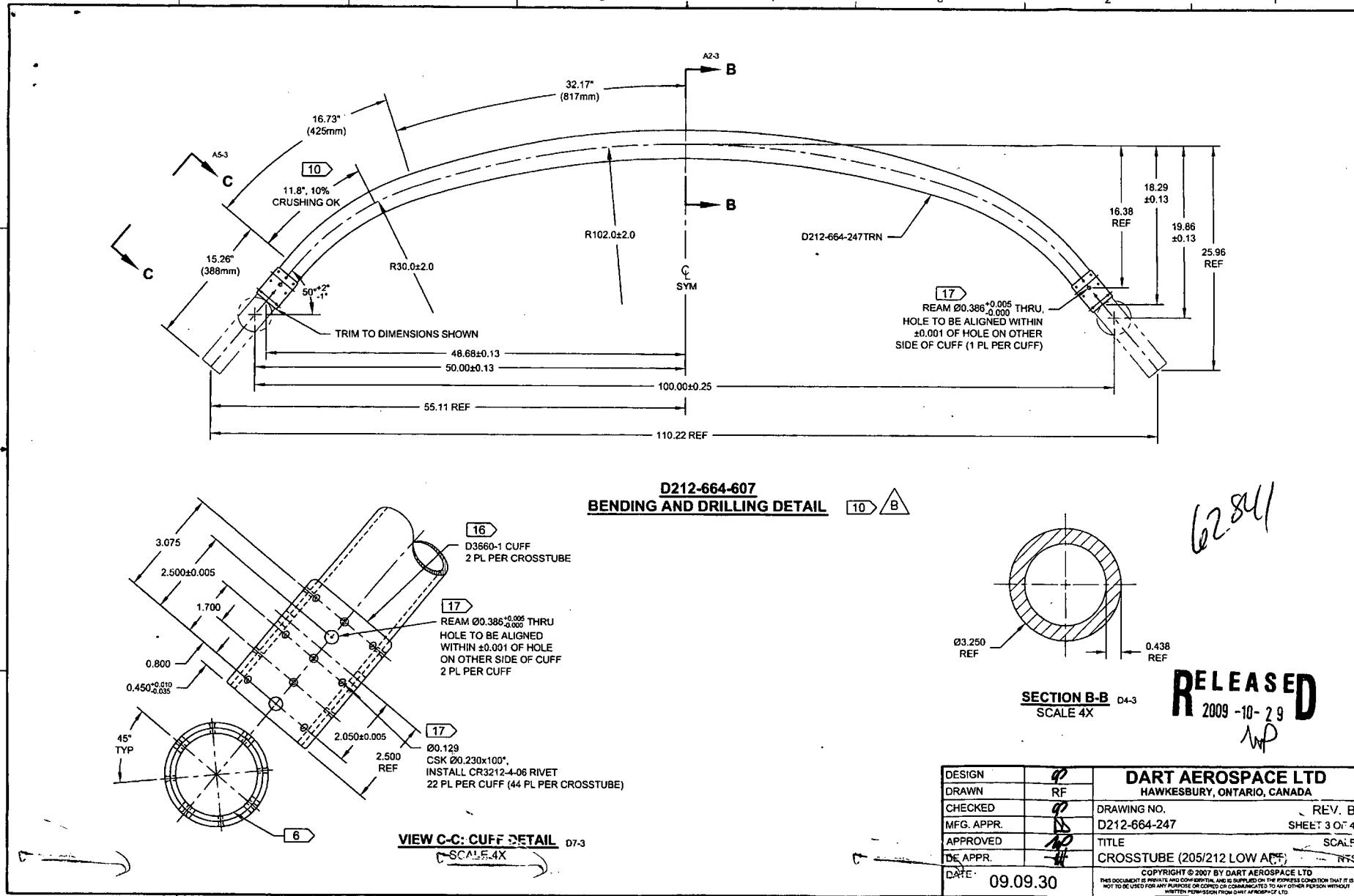
RELEASED
2009-10-7 9
NP

B	REVISE GENERAL NOTES/PART LIST; UPDATE TO CURRENT STANDARDS; ADD-247B (ZN C4-2, DS-2)		RF	09.09.30
A	NEW ISSUE		CP	07.07.07
REV.	DESCRIPTION		BY	DATE
DESIGN	99	DART AEROSPACE LTD		
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA		
CHECKED	99	DRAWING NO.	REV. B	
MFG. APPR.	DD	D212-664-247	SHEET 1 OF 4	
APPROVED	100	TITLE	SCALE	
DE APPR.	100	CROSSTUBE (205/212 LOW AFT)	NTS	
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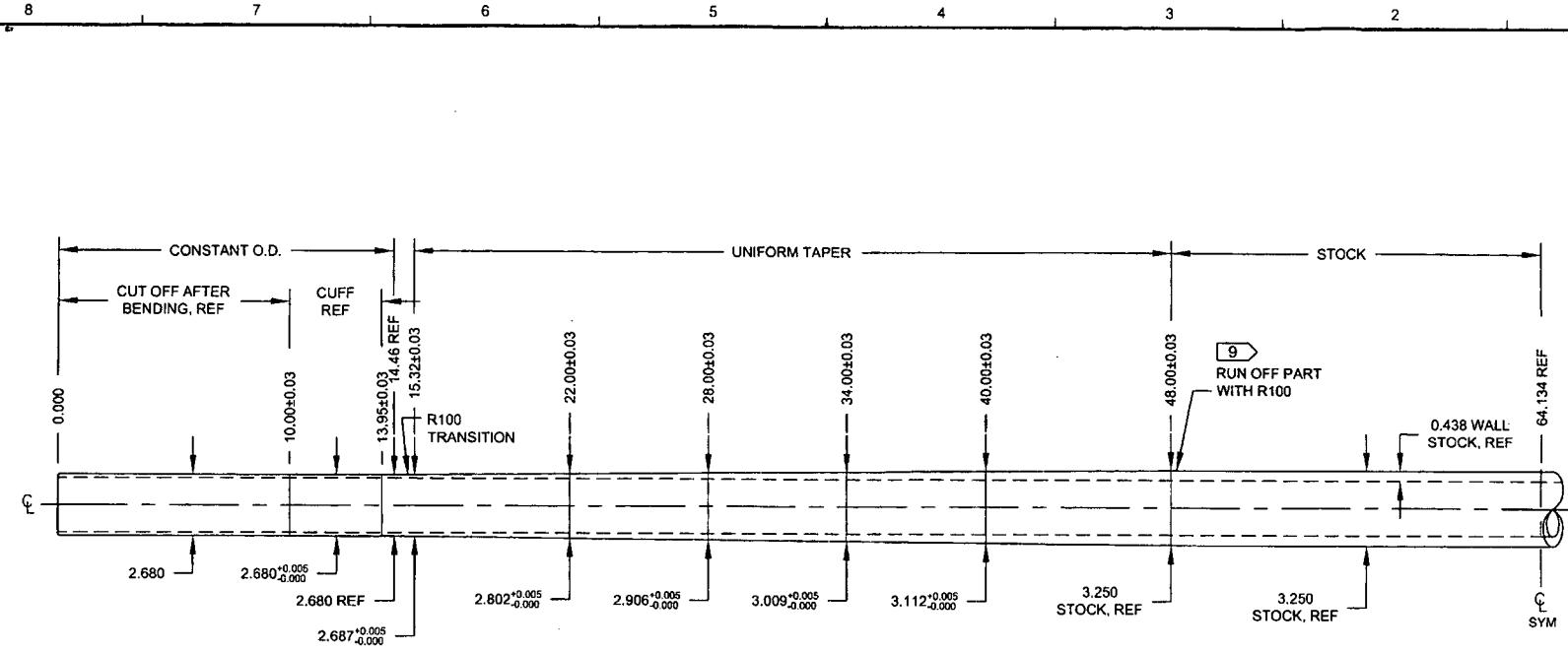
6284
RELEASED
2009-10-29
MP

DESIGN	90	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	90	DRAWING NO.
MFG. APPR.	10	D212-664-247
APPROVED	10	TITLE
DE APPR.	10	SCALE
CROSSTUBE (205/212 LOW AFT) NTS		
DATE	09.09.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD



DESIGN	90	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	90	DRAWING NO.
MFG. APPR.	90	D212-664-247
APPROVED	90	REV. B
DE APPR.	90	SHEET 3 OF 4
DATE	09.09.30	TITLE
		CROSSTUBE (205/212 LOW ALT)
		SCALE
		INTS

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D212-664-247TRN
TURNING DETAIL

RELEASED
2009-10-29
M

DESIGN	90	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	90	DRAWING NO.
MFG. APPR.	90	D212-664-247
APPROVED	90	REV. B
DE APPR.	90	SHEET 4 OF 4
DATE	09.09.30	SCALE
		CROSS TUBE (205/212 LOW AFT) NTS

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LIQUID PENETRANT TEST REPORT

P- 15196

CLIENT DART Aerospace DATE OCT-14-2010 PAGE 1 OF 1
 ATTENTION LINDA / CHANTAL TIME AM PM
 ADDRESS 1270 AGSLEDEEN ST.
HAWKES BURY, ON. ACUREN JOB NO. 188-10-0918
 PROJECT F. P. I. ON CROSS TUBES WORK LOCATION HAWKES BURY
 ITEM(S) EXAMINED (4) ACCEPTANCE STD. ASTM 1417 REV./DATE 2005

JOB DESCRIPTION PROCEDURE NO. LT-0002 REV./DATE 2008 TECHNIQUE NO. LT-Tech2 REV./DATE 2008
 PART NO. - MATERIAL Aluminum THICKNESS -
 SCOPE WET FLUORESCENT LIQUID PENETRANT CARRIED
OUT ON 100% EXTERNAL SURFACE

TEST DETAILS

METHOD <input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND <u>MAGNAFLUX</u>	BLACK LIGHT S/N <u>16459</u> <input type="checkbox"/> OUTPUT > 1000 μ W/cm ² <input type="checkbox"/> AMBIENT < 2 fc
PENETRANT <u>ZL67</u> MINIMUM DWELL TIME <u>4510</u> MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER <u>H2O</u> MINIMUM DRY TIME <u>>10</u> MIN.	OTHER
DEVELOPER <u>SKOS-2</u> MINIMUM DWELL TIME <u>10</u> MIN.	LIGHT METER S/N <u>1098866</u> CAL DUE DATE <u>OCT-19-2010</u>
DEVELOPER TYPE <input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	

TEST SURFACE

SURFACE CONDITION <input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input checked="" type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE <input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F <input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F

RESULTS- METRIC IMPERIAL

1 CROSS TUBE - W.O. 61739. ✓	
1 CROSS TUBE - W.O. 61738 ✓	
1 CROSS TUBE W.O. 62179. ✓	
1 CROSS TUBE W.O. 62841 ✓	

BT 10 10-15

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE <u>Ian Titley</u> PRINT <u>Ian Titley</u> SIGNATURE <u>Amber</u> DTR # <u>E 63396</u>	REPORT REVIEWED BY:
TECHNICIAN (SIGNATURE): <u>M. K. Johnston</u>	NAME <u></u> INITIALS <u></u>
NAME (PRINT): <u>M. K. Johnston</u>	
1 ST TECHNICIAN <u>M. K. Johnston</u>	2 ND TECHNICIAN <u></u>
CGSB LEVEL <u>1</u> SNT LEVEL <u>1</u>	CGSB LEVEL <u>1</u> SNT LEVEL <u>1</u>
CGSB REG. NO. <u>60066</u>	CGSB REG. NO. <u></u>

REFERENCE ONLY

DART AEROSPACE LTD.

IIN-D212-664

Page 19 of 20

5.2 STANDARD GEAR CROSSTUBES

Item	-107	-207	-209	Part Number	Description
				D212-664-107	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
			X	D212-664-207	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
			X	D412-664-209	CROSSTUBE INSTALLATION, 412 STANDARD AFT
6	1			D212-664-147	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
7		1		D212-664-247	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
8			1	D412-664-249	CROSSTUBE ASSEMBLY, 412 STANDARD AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
45	2			* D3659-1	CUFF
46		2	2	* D3660-1	CUFF
47	44	44		* CR3212-4-06	RIVET (M7885/3-4-06)
48			44	* CR3212-4-07	RIVET (M7885/3-4-07)
50	1	1		D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-147/-247 OR D412-664-249 ASSEMBLIES ABOVE

NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA
SKIDTUBES.

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Revision: F
Date: 08.09.05